



SEQUENCE LISTING

<110> Shyjan, Andrew W.

<120> COMPOSITIONS AND METHODS FOR THE DIAGNOSIS, PREVENTION
AND TREATMENT OF TUMOR PROGRESSION

<130> 07334/004002

<140> US 08/862,442

<141> 1997-05-23

<150> US 08/623,679
<151> 1996-03-29

<160> 9

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 186

<212> DNA

<213> Mus musculus

<400> 1

ggtgctggag tacctcatgg gcgggtgccta ccgctgcaac tacactcgga aaagcttccg	60
gactctcac aacaacttgt ttggccctaa gagggtagag ctcagcagac acacagtgtc	120
ctgtgcctcc cagagtaaca tgggttccct tgatgtgctt ccccaaaagc ccacctgtgc	180
agaatg	186

<210> 2

<211> 2729

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (321)...(1946)

<400> 2

aaggaggcta ggctgcaccc ttcccgttgc ctcagcagct gaggcagggt cagaaagcat	60	
ggatagagaa gacattttgc aaaaggaaat gcatctttgt aattcccaagt aaaaaagacc	120	
ctaacagatg ttgctgtggc cagctcaacta accagcacat ccccccttgc ccgagtgccc	180	
ctcccagcac aacaggagag gacaccaagc aggacacac gcagtccccc aaatggctcg	240	
tcagcaaaca caccagac tacccaacag actccttatgg gattcttgaa ttccagggtg	300	
ggggttactc caataaagcc atg tac atc cga gtc tcc tac gac acc aag cca	353	
Met Tyr Ile Arg Val Ser Tyr Asp Thr Lys Pro		
1	5	10

gat tcc ctg ctc cac ctc atg gtg aag gac tgg cag ctg gag ctc ccg	401	
Asp Ser Leu Leu His Leu Met Val Lys Asp Trp Gln Leu Glu Leu Pro		
15	20	25

aag ctc ttg ata tct gtg cac gga ggc ctc caa agc ttc gag atg cag	449	
Lys Leu Ile Ser Val His Gly Gly Leu Gln Ser Phe Glu Met Gln		
30	35	40

tcc aaa ctg aag cag gtg ttt ggg aaa ggt ctg atc aag gct gcc atg	497	
Ser Lys Leu Lys Gln Val Phe Gly Lys Gly Leu Ile Lys Ala Ala Met		
45	50	55

acc acg ggg ggc tgg atc ttc acc ggg ggt gtg agc act ggt gtc gtc		545
Thr Thr Gly Ala Trp Ile Phe Thr Gly Gly Val Ser Thr Gly Val Val		
60 65 70 75		
agc cat gtg ggg gat gcc ttg aaa gac cac tcc tcc aag tcc aga ggc		593
Ser His Val Gly Asp Ala Leu Lys Asp His Ser Ser Lys Ser Arg Gly		
80 85 90		
cgg ctc tgt gct ata gga att gct ccc tgg ggc atg gtg gag aac aag		641
Arg Leu Cys Ala Ile Gly Ile Ala Pro Trp Gly Met Val Glu Asn Lys		
95 100 105		
gaa gac ctg att gga aaa gat gta aca aga gtc tat cag acc atg tcc		689
Glu Asp Leu Ile Gly Lys Asp Val Thr Arg Val Tyr Gln Thr Met Ser		
110 115 120		
aac cct ctg agc aag ctc tct gtg ctc aac aat tcc cac act cac ttc		737
Asn Pro Leu Ser Lys Leu Ser Val Leu Asn Asn Ser His Thr His Phe		
125 130 135		
atc ttg gct gac aac ggc acc ctg ggc aag tat ggt gct gag gtg aag		785
Ile Leu Ala Asp Asn Gly Thr Leu Gly Lys Tyr Gly Ala Glu Val Lys		
140 145 150 155		
ctt cga aga cag ctg gaa aaa cac atc tcc ctg cag aag atc aac aca		833
Leu Arg Arg Gln Leu Glu Lys His Ile Ser Leu Gln Lys Ile Asn Thr		
160 165 170		
agg ctg ggc cag ggt gta cct gtc gtg ggc cta gtg gta gaa ggt ggt		881
Arg Leu Gly Gln Gly Val Pro Val Val Gly Leu Val Val Glu Gly Gly		
175 180 185		
cct aac gtg gtt tct atc gtc ctg gag tat ctc aaa gaa gac cct cct		929
Pro Asn Val Val Ser Ile Val Leu Glu Tyr Leu Lys Glu Asp Pro Pro		
190 195 200		
gtc cct gtg gtg gtt tgc gat ggc agt gga cgt gcc tct gac att ttg		977
Val Pro Val Val Val Cys Asp Gly Ser Gly Arg Ala Ser Asp Ile Leu		
205 210 215		
tcc ttc gca cac aaa tac tgc gac gaa gga gga gtc ata aac gag tcc		1025
Ser Phe Ala His Lys Tyr Cys Asp Glu Gly Val Ile Asn Glu Ser		
220 225 230 235		
ctg cgg gac cag ctt cta gtt acc att cag aaa aca ttt aat tac agc		1073
Leu Arg Asp Gln Leu Leu Val Thr Ile Gln Lys Thr Phe Asn Tyr Ser		
240 245 250		
aag tcc cag tcg tat cag ctg ttt gca att atc atg gag tgc atg aag		1121
Lys Ser Gln Ser Tyr Gln Leu Phe Ala Ile Ile Met Glu Cys Met Lys		
255 260 265		
aag aaa gaa ctc gtc act gtg ttt cgg atg ggt tcc gag ggt cag caa		1169
Lys Lys Glu Leu Val Thr Val Phe Arg Met Gly Ser Glu Gly Gln Gln		
270 275 280		
gat gtc gag atg gca att tta act gcc ttg ctc aaa gga acc aac gca		1217
Asp Val Glu Met Ala Ile Leu Thr Ala Leu Leu Lys Gly Thr Asn Ala		
285 290 295		

-2-

D

tca gct cca gat cag ctg agc ttg gcc ctg gct tgg aac cg ^g gtc gac Ser Ala Pro Asp Gln Leu Ser Leu Ala Leu Ala Trp Asn Arg Val Asp 300 305 310 315	1265
ata gcg cga agc cag atc ttc gtc ttt ggc cca cac tgg ccg cca ctg Ile Ala Arg Ser Gln Ile Phe Val Phe Gly Pro His Trp Pro Pro Leu 320 325 330	1313
gga agc ctg gcc cct cct gtg gac acc aaa gcc gca gag aag gaa aag Gly Ser Leu Ala Pro Pro Val Asp Thr Lys Ala Ala Glu Lys Glu Lys 335 340 345	1361
aag cca ccc aca gcc acc acc aag ggg aga gga aaa gga aaa ggc aag Lys Pro Pro Thr Ala Thr Lys Gly Arg Gly Lys Gly Lys Gly Lys 350 355 360	1409
aag aaa ggc aaa gtg aaa gag gaa gtg gag gaa gag acg gac ccc ccg Lys Lys Gly Lys Val Lys Glu Glu Val Glu Glu Thr Asp Pro Arg 365 370 375	1457
aag ctt gag ctg ctc aac tgg gtg aat gcc ctg gag caa gcc atg ctg Lys Leu Glu Leu Leu Asn Trp Val Asn Ala Leu Glu Gln Ala Met Leu 380 385 390 395	1505
gat gct ctt gtc cta gat cgg gtg gac ttt gta aag ctc ctg att gaa Asp Ala Leu Val Leu Asp Arg Val Asp Phe Val Lys Leu Leu Ile Glu 400 405 410	1553
aac gga gtg aac atg cag cat ttc ctc acc atc ccg agg ctg gag gag Asn Gly Val Asn Met Gln His Phe Leu Thr Ile Pro Arg Leu Glu Glu 415 420 425	1601
cta tac aac acc aga ctg ggc cca cca aac acc ctt cat ctg ctg gtg Leu Tyr Asn Thr Arg Leu Gly Pro Pro Asn Thr Leu His Leu Leu Val 430 435 440	1649
cg ^g gat gta aag aag agc aac ctt cca cct gat tac cac atc agc ctc Arg Asp Val Lys Lys Ser Asn Leu Pro Pro Asp Tyr His Ile Ser Leu 445 450 455	1697
att gat ata gga ctg gtg ctg gag tac ctc atg ggc ggt gcc tac cgc Ile Asp Ile Gly Leu Val Leu Glu Tyr Leu Met Gly Gly Ala Tyr Arg 460 465 470 475	1745
tgc aac tac act cgg aaa agc ttc cgg act ctc tac aac aac ttg ttt Cys Asn Tyr Thr Arg Lys Ser Phe Arg Thr Leu Tyr Asn Asn Leu Phe 480 485 490	1793
ggc cct aag agg gta gag ctc agc aga cac aca gtg tcc tgt gcc tcc Gly Pro Lys Arg Val Glu Leu Ser Arg His Thr Val Ser Cys Ala Ser 495 500 505	1841
cag agt aac atg tgg ttc ctt gat gtg ctt ccc caa aag ccc acc tgt Gln Ser Asn Met Trp Phe Leu Asp Val Leu Pro Gln Lys Pro Thr Cys 510 515 520	1889
gca gaa tgc aac tct tca cct cac ctg tcc caa act gac atc acc cca Ala Glu Cys Asn Ser Ser Pro His Leu Ser Gln Thr Asp Ile Thr Pro 525 530 535	1937

cct ctg ccc tgacacccag tgcagggcct ctagtttc acatgcagcc
Pro Leu Pro
540

1986 .

attcacatcg cctctcaaga ctgggccagg cagtgcacc	tgtcaagcat gtctgtcctc	2046
ccctccttcc tacaatagcc ccccctctgg gccccatgcc	tctgctctct cagcccggtc	2106
tcctccccac tgcactgg cgctcctgtt gtcttccaag	gcaaggaaaca aggaaaaagca	2166
tcttttgcc cacaaaaagt tagggctccc cgctgtcaa	ccatagccaa cctcactgt	2226
catcgagtc atccaggcca gctgccacac acaaggcctc	cccacccat cccaatagac	2286
cctattcctc catcaaaaatc aaagcttaact cctggcctgc	cacattgtt ctttttgctc	2346
cagcctgtta aacctccaaat aaatgtcaga tctgtggaa	gccttcctca ctctcactcc	2406
acagttgtta cagagagcga gaggcctcggt tggttctact	tacaaggaag gctttgtgtc	2466
tgtctgtctt tcccaactga cttctgttga cagaaggcgt	ttccacatga aagcggtgac	2526
tcacctggat gttgttatta attaataatgt atacaaaata	ttgacacttc tttcctgct	2586
tctttgttat gcagccgaaa gcaacttaagc ttctggaaat	ggaagtaagt aggacatgtt	2646
tgtggcagtt tatatactat atatacctt gtcattctgt	ggaagcaaaa attgcaatgt	2706
tttccatgaa taaagctcg	gcc	2729

<210> 3

<211> 542

<212> PRT

<213> Mus musculus

<400> 3

Met Tyr Ile Arg Val Ser Tyr Asp Thr Lys Pro Asp Ser Leu Leu His
1 5 10 15

Leu Met Val Lys Asp Trp Gln Leu Glu Leu Pro Lys Leu Leu Ile Ser
20 25 30

Val His Gly Gly Leu Gln Ser Phe Glu Met Gln Ser Lys Leu Lys Gln
35 40 45

Val Phe Gly Lys Gly Leu Ile Lys Ala Ala Met Thr Thr Gly Ala Trp
50 55 60

Ile Phe Thr Gly Gly Val Ser Thr Gly Val Val Ser His Val Gly Asp
65 70 75 80

Ala Leu Lys Asp His Ser Ser Lys Ser Arg Gly Arg Leu Cys Ala Ile
85 90 95

Gly Ile Ala Pro Trp Gly Met Val Glu Asn Lys Glu Asp Leu Ile Gly
100 105 110

Lys Asp Val Thr Arg Val Tyr Gln Thr Met Ser Asn Pro Leu Ser Lys
115 120 125

Leu Ser Val Leu Asn Asn Ser His Thr His Phe Ile Leu Ala Asp Asn
130 135 140

Gly Thr Leu Gly Lys Tyr Gly Ala Glu Val Lys Leu Arg Arg Gln Leu
145 150 155 160

Glu Lys His Ile Ser Leu Gln Lys Ile Asn Thr Arg Leu Gly Gln Gly
165 170 175

Val Pro Val Val Gly Leu Val Val Glu Gly Gly Pro Asn Val Val Ser
180 185 190

Ile Val Leu Glu Tyr Leu Lys Glu Asp Pro Pro Val Pro Val Val Val
195 200 205

Cys Asp Gly Ser Gly Arg Ala Ser Asp Ile Leu Ser Phe Ala His Lys
210 215 220

Tyr Cys Asp Glu Gly Val Ile Asn Glu Ser Leu Arg Asp Gln Leu
225 230 235 240

Leu Val Thr Ile Gln Lys Thr Phe Asn Tyr Ser Lys Ser Gln Ser Tyr
245 250 255

Gln Leu Phe Ala Ile Ile Met Glu Cys Met Lys Lys Glu Leu Val
260 265 270

Thr Val Phe Arg Met Gly Ser Glu Gly Gln Gln Asp Val Glu Met Ala
275 280 285

Ile Leu Thr Ala Leu Leu Lys Gly Thr Asn Ala Ser Ala Pro Asp Gln
290 295 300

Leu Ser Leu Ala Leu Ala Trp Asn Arg Val Asp Ile Ala Arg Ser Gln
 305 310 315 320
 Ile Phe Val Phe Gly Pro His Trp Pro Pro Leu Gly Ser Leu Ala Pro
 325 330 335
 Pro Val Asp Thr Lys Ala Ala Glu Lys Glu Lys Lys Pro Pro Thr Ala
 340 345 350 355
 Thr Thr Lys Gly Arg Gly Lys Gly Lys Lys Lys Gly Lys Val
 355 360 365
 Lys Glu Glu Val Glu Glu Thr Asp Pro Arg Lys Leu Glu Leu Leu
 370 375 380
 Asn Trp Val Asn Ala Leu Glu Gln Ala Met Leu Asp Ala Leu Val Leu
 385 390 395 400
 Asp Arg Val Asp Phe Val Lys Leu Leu Ile Glu Asn Gly Val Asn Met
 405 410 415
 Gln His Phe Leu Thr Ile Pro Arg Leu Glu Glu Leu Tyr Asn Thr Arg
 420 425 430
 Leu Gly Pro Pro Asn Thr Leu His Leu Leu Val Arg Asp Val Lys Lys
 435 440 445
 Ser Asn Leu Pro Pro Asp Tyr His Ile Ser Leu Ile Asp Ile Gly Leu
 450 455 460
 Val Leu Glu Tyr Leu Met Gly Gly Ala Tyr Arg Cys Asn Tyr Thr Arg
 465 470 475 480
 Lys Ser Phe Arg Thr Leu Tyr Asn Asn Leu Phe Gly Pro Lys Arg Val
 485 490 495
 Glu Leu Ser Arg His Thr Val Ser Cys Ala Ser Gln Ser Asn Met Trp
 500 505 510
 Phe Leu Asp Val Leu Pro Gln Lys Pro Thr Cys Ala Glu Cys Asn Ser
 515 520 525
 Ser Pro His Leu Ser Gln Thr Asp Ile Thr Pro Pro Leu Pro
 530 535 540

<210> 4
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 4
 ggggaagcac atcaaggaac

<210> 5
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 5
 gcaactacta cactcgaaaa agc

<210> 6
 <211> 4944
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (346)...(4836)

20

23

<400> 6

actcattata gggntcgagc ggccgcccgg gcagggttga gctgtgcctt ctccattcca	60
ctgctgtggc agggtcagaa atcttgata gagaaaaacct tttgcaaacg ggaatgtatc	120
ttttaattc ctgcacgaa agactctaac agggtttgct gtggccagtt caccaaccag	180
catatcccc ctctgccaag tgcaacacccc agaaaaatg aagaggaaag caaacagggtg	240
gagactcagc ctgagaaatg gtctgtgcc aagcacaccc agagctaccc aacagattcc	300
tatggagttc ttgaattcca gggtggcgga tattccaata aagcc atg tat atc cgt	357
Met Tyr Ile Arg	
1	
gta tcc tat gac acc aag cca gac tca ctg ctc cat ctc atg gtg aaa	405
Val Ser Tyr Asp Thr Lys Pro Asp Ser Leu Leu His Leu Met Val Lys	
5 10 15 20	
gat tgg cag ctg gaa ctc ccc aag ctc tta ata tct gtg cat gga ggc	453
Asp Trp Gln Leu Glu Leu Pro Lys Leu Leu Ile Ser Val His Gly Gly	
25 30 35	
ctc cag aac ttt gag atg cag ccc aag ctg aaa caa gtc ttt ggg aaa	501
Leu Gln Asn Phe Glu Met Gln Pro Lys Leu Lys Gln Val Phe Gly Lys	
40 45 50	
ggc ctg atc aag gct atg acc acc ggg gcc tgg atc ttc acc ggg	549
Gly Leu Ile Lys Ala Ala Met Thr Thr Gly Ala Trp Ile Phe Thr Gly	
55 60 65	
ggt gtc agc aca ggt gtt atc agc cac gta ggg gat gcc ttg aaa gac	597
Gly Val Ser Thr Gly Val Ile Ser His Val Gly Asp Ala Leu Lys Asp	
70 75 80	
cac tcc tcc aag tcc aga ggc cggtt tgt gct ata gga att gct cca	645
His Ser Ser Lys Ser Arg Gly Arg Val Cys Ala Ile Gly Ile Ala Pro	
85 90 95 100	
tgg ggc atc gtg gag aat aag gaa gac ctg gtt gga aag gat gta aca	693
Trp Gly Ile Val Glu Asn Lys Glu Asp Leu Val Gly Lys Asp Val Thr	
105 110 115	
aga gtg tac cag acc atg tcc aac cct cta agt aag ctc tct gtg ctc	741
Arg Val Tyr Gln Thr Met Ser Asn Pro Leu Ser Lys Leu Ser Val Leu	
120 125 130	
aac aac tcc cac acc cac ttc atc ctg gct gac aat ggc acc ctg ggc	789
Asn Asn Ser His Thr His Phe Ile Leu Ala Asp Asn Gly Thr Leu Gly	
135 140 145	
aag tat ggc gcc gag gtg aag ctg cga agg ctg ctg gaa aag cac atc	837
Lys Tyr Gly Ala Glu Val Lys Leu Arg Arg Leu Leu Glu Lys His Ile	
150 155 160	
tcc ctc cag aag atc aac aca aga ctg ggg cag ggc gtg ccc ctc gtg	885
Ser Leu Gln Lys Ile Asn Thr Arg Leu Gly Gln Gly Val Pro Leu Val	
165 170 175 180	
ggc ctc gtg gtg gag ggg ggc cct aac gtg gtg tcc atc gtc ttg gaa	933
Gly Leu Val Val Glu Gly Gly Pro Asn Val Val Ser Ile Val Leu Glu	
185 190 195	
tac ctg caa gaa gag cct ccc atc cct gtg gtg att tgt gat ggc agc	981
Tyr Leu Gln Glu Glu Pro Pro Ile Pro Val Val Ile Cys Asp Gly Ser	
200 205 210	

gga cgt gcc tcg gac atc ctg tcc ttt gcg cac aag tac tgt gaa gaa 1029
 Gly Arg Ala Ser Asp Ile Leu Ser Phe Ala His Lys Tyr Cys Glu Glu
 215 220 225
 ggc gga ata ata aat gag tcc ctc agg gag cag ctt cta gtt acc att 1077
 Gly Gly Ile Ile Asn Glu Ser Leu Arg Glu Gln Leu Leu Val Thr Ile
 230 235 240
 cag aaa aca ttt aat tat aat aag gca caa tca cat cag ctg ttt gca 1125
 Gln Lys Thr Phe Asn Tyr Asn Lys Ala Gln Ser His Gln Leu Phe Ala
 245 250 255 260
 att ata atg gag tgc atg aag aag aaa gaa ctc gtc act gtg ttc aga 1173
 Ile Ile Met Glu Cys Met Lys Lys Glu Leu Val Thr Val Phe Arg
 265 270 275
 atg ggt tct gag ggc cag cag gac atc gag atg gca att tta act gcc 1221
 Met Gly Ser Glu Gly Gln Gln Asp Ile Glu Met Ala Ile Leu Thr Ala
 280 285 290
 ctg ctg aaa gga aca aac gta tct gct cca gat cag ctg agc ttg gca 1269
 Leu Leu Lys Gly Thr Asn Val Ser Ala Pro Asp Gln Leu Ser Leu Ala
 295 300 305
 ctg gct tgg aac cgc gtg gac ata gca cga agc cag atc ttt gtc ttt 1317
 Leu Ala Trp Asn Arg Val Asp Ile Ala Arg Ser Gln Ile Phe Val Phe
 310 315 320
 ggg ccc cac tgg acg ccc ctg gga agc ctg gca ccc ccg acg gac agc 1365
 Gly Pro His Trp Thr Pro Leu Gly Ser Leu Ala Pro Pro Thr Asp Ser
 325 330 335 340
 aaa gcc acg gag aag gag aag aag cca ccc atg gcc acc acc aag gga 1413
 Lys Ala Thr Glu Lys Glu Lys Pro Pro Met Ala Thr Thr Lys Gly
 345 350 355
 gga aga gga aaa ggg aaa ggc aag aag aaa ggg aaa gtg aaa gag gaa 1461
 Gly Arg Gly Lys Gly Lys Gly Lys Lys Lys Gly Lys Val Lys Glu Glu
 360 365 370
 gtg gag gaa act gac ccc cgaa aag ata gag ctg ctg aac tgg gtg 1509
 Val Glu Glu Thr Asp Pro Arg Lys Ile Glu Leu Leu Asn Trp Val
 375 380 385
 aat gct ttg gag caa gcg atg cta gat gct tta gtc tta gat cgt gtc 1557
 Asn Ala Leu Glu Gln Ala Met Leu Asp Ala Leu Val Leu Asp Arg Val
 390 395 400
 gac ttt gtg aag ctc ctg att gaa aac gga gtg aac atg caa cac ttt 1605
 Asp Phe Val Lys Leu Leu Ile Glu Asn Gly Val Asn Met Gln His Phe
 405 410 415 420
 ctg acc att ccg agg ctg gag gag ctt tat aac aca aga ctg ggt cca 1653
 Leu Thr Ile Pro Arg Leu Glu Leu Tyr Asn Thr Arg Leu Gly Pro
 425 430 435
 cca aac aca ctt cat ctg ctg gtg agg gat gtg aaa aag agc aac ctt 1701
 Pro Asn Thr Leu His Leu Leu Val Arg Asp Val Lys Lys Ser Asn Leu
 440 445 450

D

ccg cct gat tac cac atc agc ctc ata gac atc ggg ctc gtg ctg gag 1749
 Pro Pro Asp Tyr His Ile Ser Leu Ile Asp Ile Gly Leu Val Leu Glu
 455 460 465

 tac ctc atg gga gga gcc tac cgc tgc aac tac act cgg aaa aac ttt 1797
 Tyr L u Met Gly Gly Ala Tyr Arg Cys Asn Tyr Thr Arg Lys Asn Phe
 470 475 480

 cg^g acc ctt tac aac aac ttg ttt gga cca aag agg cct aaa gct ctt 1845
 Arg Thr Leu Tyr Asn Asn Leu Phe Gly Pro Lys Arg Pro Lys Ala Leu
 485 490 495 500

 aaa ctt ctg gga atg gaa gat gat gag cct cca gct aaa ggg aag aaa 1893
 Lys Leu Leu Gly Met Glu Asp Asp Glu Pro Pro Ala Lys Gly Lys Lys
 505 510 515

 aaa aaa aaa aag aaa aag gag gaa gag atc gac att gat gtg gac gac 1941
 Lys Lys Lys Lys Lys Glu Glu Glu Ile Asp Ile Asp Val Asp Asp
 520 525 530

 cct gcc gtg agt cg^g ttc cag tat ccc ttc cac gag ctg atg gtg tgg 1989
 Pro Ala Val Ser Arg Phe Gln Tyr Pro Phe His Glu Leu Met Val Trp
 535 540 545

 gca gtg ctg atg aaa cgc cag aaa atg gca gtg ttc ctc tgg cag cga 2037
 Ala Val Leu Met Lys Arg Gln Lys Met Ala Val Phe Leu Trp Gln Arg
 550 555 560

 ggg gaa gag agc atg gcc aag gcc ctg gtg gcc tgc aag ctc tac aag 2085
 Gly Glu Glu Ser Met Ala Lys Ala Leu Val Ala Cys Lys Leu Tyr Lys
 565 570 575 580

 gcc atg gcc cac gag tcc tcc gag agt gat ctg gtg gat gac atc tcc 2133
 Ala Met Ala His Glu Ser Ser Glu Ser Asp Leu Val Asp Asp Ile Ser
 585 590 595

 cag gac ttg gat aac aat tcc aaa gac ttc ggc cag ctt gct ttg gag 2181
 Gln Asp Leu Asp Asn Asn Ser Lys Asp Phe Gly Gln Leu Ala Leu Glu
 600 605 610

 tta tta gac cag tcc tat aag cat gac gag cag atc gct atg aaa ctc 2229
 Leu Leu Asp Gln Ser Tyr Lys His Asp Glu Gln Ile Ala Met Lys Leu
 615 620 625

 ctg acc tac gag ctg aaa aac tgg agc aac tcg acc tgc ctc aaa ctg 2277
 Leu Thr Tyr Glu Leu Lys Asn Trp Ser Asn Ser Thr Cys Leu Lys Leu
 630 635 640

 gcc gtg gca gcc aaa cac cgg gac ttc att gct cac acc tgc agc cag 2325
 Ala Val Ala Ala Lys His Arg Asp Phe Ile Ala His Thr Cys Ser Gln
 645 650 655 660

 atg ctg ctg acc gat atg tgg atg gga aga ctg cgg atg cgg aag aac 2373
 Met Leu Leu Thr Asp Met Trp Met Gly Arg Leu Arg Met Arg Lys Asn
 665 670 675

 ccc ggc ctg aag gtt atc atg ggg att ctt cta ccc ccc acc atc ttg 2421
 Pro Gly Leu Lys Val Ile Met Gly Ile Leu Leu Pro Pro Thr Ile Leu
 680 685 690

D |

ttt ttg gaa ttt cgc aca tat gat gat ttc tcg tat caa aca aca tcc aag Phe Leu Glu Phe Arg Thr Tyr Asp Asp Phe Ser Tyr Gln Thr Ser Lys 695 700 705	2469
gaa aac gag gat ggc aaa gaa aaa gaa gag gaa aat acg gat gca aat Glu Asn Glu Asp Gly Lys Glu Lys Glu Asn Thr Asp Ala Asn 710 715 720	2517
gca gat gct ggc tca aga aag ggg gat gag gag aac gag cat aaa aaa Ala Asp Ala Gly Ser Arg Lys Gly Asp Glu Glu Asn Glu His Lys Lys 725 730 735 740	2565
cag aga att atc ccc atc gga aca aaa atc tgt aaa ttc tat aac gcg Gln Arg Ile Ile Pro Ile Gly Thr Lys Ile Cys Lys Phe Tyr Asn Ala 745 750 755	2613
ccc att gtc aag ttc tgg ttt tac aca ata tca tac ttg ggc tac ctg Pro Ile Val Lys Phe Trp Phe Tyr Thr Ile Ser Tyr Leu Gly Tyr Leu 760 765 770	2661
ctg ctg ttt aac tac gtc atc ctg gtg cggt atg gat ggc tgg ccg tcc Leu Leu Phe Asn Tyr Val Ile Leu Val Arg Met Asp Gly Trp Pro Ser 775 780 785	2709
ctc cag gag tgg atc gtc atc tcc tac atc gtg agc ctg gcg tta gag Leu Gln Glu Trp Ile Val Ile Ser Tyr Ile Val Ser Leu Ala Leu Glu 790 795 800	2757
aag ata cga gag atc ctc atg tca gaa cca ggc aaa ctc agc cag aaa Lys Ile Arg Glu Ile Leu Met Ser Glu Pro Gly Lys Leu Ser Gln Lys 805 810 815 820	2805
atc aaa gtt tgg ctt cag gag tac tgg aac atc aca gat ctc gtg gcc Ile Lys Val Trp Leu Gln Glu Tyr Trp Asn Ile Thr Asp Leu Val Ala 825 830 835	2853
att tcc aca ttc atg att gga gca atg gcc acg aga tct gtg atg atg Ile Ser Thr Phe Met Ile Gly Ala Met Ala Thr Arg Ser Val Met Met 840 845 850	2901
att gga aag atg atg atc gac atg ctg tac ttt gtg gtc atc atg ctg Ile Gly Lys Met Met Ile Asp Met Leu Tyr Phe Val Val Ile Met Leu 855 860 865	2949
gtc gtg ctc atg agt ttc gga gta gcc cgt caa gcc att ctg cat cca Val Val Leu Met Ser Phe Gly Val Ala Arg Gln Ala Ile Leu His Pro 870 875 880	2997
gag gag aag ccc tct tgg aaa ctg gcc cga aac atc ttc tac atg ccc Glu Glu Lys Pro Ser Trp Lys Leu Ala Arg Asn Ile Phe Tyr Met Pro 885 890 895 900	3045
tac tgg atg atc tat gga gag gtg ttt gca gac cag ata gac ctc tac Tyr Trp Met Ile Tyr Gly Glu Val Phe Ala Asp Gln Ile Asp Leu Tyr 905 910 915	3093
gcc atg gaa att aat cct cct tgt ggt gag aac cta tat gat gag gag Ala Met Glu Ile Asn Pro Pro Cys Gly Glu Asn Leu Tyr Asp Glu Glu 920 925 930	3141

D

ggc aag cgg ctt cct ccc tgt atc ccc ggc gcc tgg ctc act cca gca Gly Lys Arg Leu Pro Pro Cys Ile Pro Gly Ala Trp Leu Thr Pro Ala 935 940 945	3189
ctc atg gcg tgc tat cta ctg gtc gcc aac atc ctg ctg gtg aac ctg Leu Met Ala Cys Tyr Leu Leu Val Ala Asn Ile Leu Leu Val Asn Leu 950 955 960	3237
ctg att gct gtg ttc aac aat acc ttc ttt gaa gta aaa tca ata tcc Leu Ile Ala Val Phe Asn Asn Thr Phe Phe Glu Val Lys Ser Ile Ser 965 970 975 980	3285
aac cag gtg tgg aag ttc cag cga tat cag ctg att atg aca ttt cat Asn Gln Val Trp Lys Phe Gln Arg Tyr Gln Leu Ile Met Thr Phe His 985 990 995	3333
gac agg cca gtc ctg ccc cca ccg atg atc att tta agc cac atc tac Asp Arg Pro Val Leu Pro Pro Met Ile Ile Leu Ser His Ile Tyr 1000 1005 1010	3381
atc atc att atg cgt ctc agc ggc cgc tgc agg aaa aag aga gaa ggg Ile Ile Ile Met Arg Leu Ser Gly Arg Cys Arg Lys Arg Glu Gly 1015 1020 1025	3429
gac caa gag gaa cgg gat cgt gga ttg aag ctc ttc ctt agc gac gag Asp Gln Glu Glu Arg Asp Arg Gly Leu Lys Leu Phe Leu Ser Asp Glu 1030 1035 1040	3477
gag cta aag agg ctg cat gag ttc gag gag cag tgc gtg cag gag cac Glu Leu Lys Arg Leu His Glu Phe Glu Glu Gln Cys Val Gln Glu His 1045 1050 1055 1060	3525
ttc cgg gag aag gag gat gag cag cag tcg tcc agc gac gag cgc atc Phe Arg Glu Lys Glu Asp Glu Gln Gln Ser Ser Asp Glu Arg Ile 1065 1070 1075	3573
cg gtc act tct gaa aga gtt gaa aat atg tca atg agg ttg gaa gaa Arg Val Thr Ser Glu Arg Val Glu Asn Met Ser Met Arg Leu Glu Glu 1080 1085 1090	3621
atc aat gaa aga gaa act ttt atg aaa act tcc ctg cag act gtt gac Ile Asn Glu Arg Glu Thr Phe Met Lys Thr Ser Leu Gln Thr Val Asp 1095 1100 1105	3669
ctt cga ctt gct cag cta gaa gaa tta tct aac aga atg gtg aat gct Leu Arg Leu Ala Gln Leu Glu Leu Ser Asn Arg Met Val Asn Ala 1110 1115 1120	3717
ctt gaa aat ctt gcg gga atc gac agg tct gac ctg atc cag gca cgg Leu Glu Asn Leu Ala Gly Ile Asp Arg Ser Asp Leu Ile Gln Ala Arg 1125 1130 1135 1140	3765
tcc cgg gct tct tct gaa tgt gag gca acg tat ctt ctc cgg caa agc Ser Arg Ala Ser Ser Glu Cys Glu Ala Thr Tyr Leu Leu Arg Gln Ser 1145 1150 1155	3813
agc atc aat agc gct gat ggc tac agc ttg tat cga tat cat ttt aac Ser Ile Asn Ser Ala Asp Gly Tyr Ser Leu Tyr Arg Tyr His Phe Asn 1160 1165 1170	3861

gga gaa gag tta tta ttt gag gat aca tct ctc tcc acg tca cca ggg Gly Glu Leu Leu Phe Glu Asp Thr Ser Leu Ser Thr Ser Pro Gly 1175 1180 1185	3909
aca gga gtc agg aaa aaa acc tgt tcc ttc cgt ata aag gaa gag aag Thr Gly Val Arg Lys Lys Thr Cys Ser Phe Arg Ile Lys Glu Glu Lys 1190 1195 1200	3957
gac gtg aaa acg cac cta gtc cca gaa tgt cag aac agt ctt cac ctt Asp Val Lys Thr His Leu Val Pro Glu Cys Gln Asn Ser Leu His Leu 1205 1210 1215 1220	4005
tca ctg ggc aca agc aca tca gca acc cca gat ggc agt cac ctt gca Ser Leu Gly Thr Ser Ala Thr Pro Asp Gly Ser His Leu Ala 1225 1230 1235	4053
gta gat gac tta aag aac gct gaa gag tca aaa tta ggt cca gat att Val Asp Asp Leu Lys Asn Ala Glu Glu Ser Lys Leu Gly Pro Asp Ile 1240 1245 1250	4101
ggg att tca aag gaa gat gat gaa aga cag aca gac tct aaa aaa gaa Gly Ile Ser Lys Glu Asp Asp Glu Arg Gln Thr Asp Ser Lys Lys Glu 1255 1260 1265	4149
gaa act att tcc cca agt tta aat aaa aca gat gtg ata cat gga cag Glu Thr Ile Ser Pro Ser Leu Asn Lys Thr Asp Val Ile His Gly Gln 1270 1275 1280	4197
gac aaa tca gat gtt caa aac act cag cta aca gtg gaa acg aca aat Asp Lys Ser Asp Val Gln Asn Thr Gln Leu Thr Val Glu Thr Thr Asn 1285 1290 1295 1300	4245
ata gaa ggc act att tcc tat ccc ctg gaa gaa acc aaa att aca cgc Ile Glu Gly Thr Ile Ser Tyr Pro Leu Glu Glu Thr Lys Ile Thr Arg 1305 1310 1315	4293
tat ttc ccc gat gaa acg atc aat gct tgt aaa aca atg aag tcc aga Tyr Phe Pro Asp Glu Thr Ile Asn Ala Cys Lys Thr Met Lys Ser Arg 1320 1325 1330	4341
agc ttc gtc tat tcc cgg gga aga aag ctg gtc ggt ggg gtt aac cag Ser Phe Val Tyr Ser Arg Gly Arg Lys Leu Val Gly Gly Val Asn Gln 1335 1340 1345	4389
gat gta gag tac agt tca atc acg gac cag caa ttg acg acg gaa tgg Asp Val Glu Tyr Ser Ser Ile Thr Asp Gln Gln Leu Thr Thr Glu Trp 1350 1355 1360	4437
caa tgc caa gtt caa aag atc acg cgc tct cat agc aca gat att cct Gln Cys Gln Val Gln Lys Ile Thr Arg Ser His Ser Thr Asp Ile Pro 1365 1370 1375 1380	4485
tac att gtg tcg gaa gct gca gtg caa gct gag caa aaa gag cag ttt Tyr Ile Val Ser Glu Ala Ala Val Gln Ala Glu Gln Lys Glu Gln Phe 1385 1390 1395	4533
gca gat atg caa gat gaa cac cat gtc gct gaa gca att cct cga atc Ala Asp Met Gln Asp Glu His His Val Ala Glu Ala Ile Pro Arg Ile 1400 1405 1410	4581

cct cgc ttg tcc cta acc att act gac aga aat ggg atg gaa aac tta Pro Arg Leu Ser Leu Thr Ile Thr Asp Arg Asn Gly Met Glu Asn Leu 1415 1420 1425	4629														
ctg tct gtg aag cca gat caa act ttg gga ttc cca tct ctc agg tca Leu Ser Val Lys Pro Asp Gln Thr Leu Gly Phe Pro Ser Leu Arg Ser 1430 1435 1440	4677														
aaa agt tta cat gga cat cct agg aat gtg aaa tcc att cag gga aag Lys Ser Leu His Gly His Pro Arg Asn Val Lys Ser Ile Gln Gly Lys 1445 1450 1455 1460	4725														
tta gac aga tct gga cat gcc agt agt gta agc agc tta gta att gtg Leu Asp Arg Ser Gly His Ala Ser Ser Val Ser Ser Leu Val Ile Val 1465 1470 1475	4773														
tct gga atg aca gca gaa aaa aag gtt aag aaa gag aaa gct tcc Ser Gly Met Thr Ala Glu Glu Lys Lys Val Lys Lys Glu Ala Ser 1480 1485 1490	4821														
aca gaa act gaa tgc tagtctgttt tgtttcttta atttttttt ttaacagtca Thr Glu Thr Glu Cys 1495	4876														
gaaccactaa tgggtgtcat cttggccatc ctaaacatcc atccaaatttc ctaaaaacat tttccctt	4936														
	4944														
<210> 7 <211> 1497 <212> PRT <213> Homo sapiens															
<p style="text-align: center;">D</p> <table border="0"> <tbody> <tr> <td>Met Tyr Ile Arg Val Ser Tyr Asp Thr Lys Pro Asp Ser Leu Leu His 1 5 10 15</td> </tr> <tr> <td>Leu Met Val Lys Asp Trp Gln Leu Glu Leu Pro Lys Leu Ile Ser 20 25 30</td> </tr> <tr> <td>Val His Gly Gly Leu Gln Asn Phe Glu Met Gln Pro Lys Leu Lys Gln 35 40 45</td> </tr> <tr> <td>Val Phe Gly Lys Gly Leu Ile Lys Ala Ala Met Thr Thr Gly Ala Trp 50 55 60</td> </tr> <tr> <td>Ile Phe Thr Gly Gly Val Ser Thr Gly Val Ile Ser His Val Gly Asp 65 70 75 80</td> </tr> <tr> <td>Ala Leu Lys Asp His Ser Ser Lys Ser Arg Gly Arg Val Cys Ala Ile 85 90 95</td> </tr> <tr> <td>Gly Ile Ala Pro Trp Gly Ile Val Glu Asn Lys Glu Asp Leu Val Gly 100 105 110</td> </tr> <tr> <td>Lys Asp Val Thr Arg Val Tyr Gln Thr Met Ser Asn Pro Leu Ser Lys 115 120 125</td> </tr> <tr> <td>Leu Ser Val Leu Asn Asn Ser His Thr His Phe Ile Leu Ala Asp Asn 130 135 140</td> </tr> <tr> <td>Gly Thr Leu Gly Lys Tyr Gly Ala Glu Val Lys Leu Arg Arg Leu Leu 145 150 155 160</td> </tr> <tr> <td>Glu Lys His Ile Ser Leu Gln Lys Ile Asn Thr Arg Leu Gly Gln Gly 165 170 175</td> </tr> <tr> <td>Val Pro Leu Val Gly Leu Val Val Glu Gly Gly Pro Asn Val Val Ser 180 185 190</td> </tr> <tr> <td>Ile Val Leu Glu Tyr Leu Gln Glu Glu Pro Pro Ile Pro Val Val Ile 195 200 205</td> </tr> <tr> <td>Cys Asp Gly Ser Gly Arg Ala Ser Asp Ile Leu Ser Phe Ala His Lys 210 215 220</td> </tr> </tbody> </table>		Met Tyr Ile Arg Val Ser Tyr Asp Thr Lys Pro Asp Ser Leu Leu His 1 5 10 15	Leu Met Val Lys Asp Trp Gln Leu Glu Leu Pro Lys Leu Ile Ser 20 25 30	Val His Gly Gly Leu Gln Asn Phe Glu Met Gln Pro Lys Leu Lys Gln 35 40 45	Val Phe Gly Lys Gly Leu Ile Lys Ala Ala Met Thr Thr Gly Ala Trp 50 55 60	Ile Phe Thr Gly Gly Val Ser Thr Gly Val Ile Ser His Val Gly Asp 65 70 75 80	Ala Leu Lys Asp His Ser Ser Lys Ser Arg Gly Arg Val Cys Ala Ile 85 90 95	Gly Ile Ala Pro Trp Gly Ile Val Glu Asn Lys Glu Asp Leu Val Gly 100 105 110	Lys Asp Val Thr Arg Val Tyr Gln Thr Met Ser Asn Pro Leu Ser Lys 115 120 125	Leu Ser Val Leu Asn Asn Ser His Thr His Phe Ile Leu Ala Asp Asn 130 135 140	Gly Thr Leu Gly Lys Tyr Gly Ala Glu Val Lys Leu Arg Arg Leu Leu 145 150 155 160	Glu Lys His Ile Ser Leu Gln Lys Ile Asn Thr Arg Leu Gly Gln Gly 165 170 175	Val Pro Leu Val Gly Leu Val Val Glu Gly Gly Pro Asn Val Val Ser 180 185 190	Ile Val Leu Glu Tyr Leu Gln Glu Glu Pro Pro Ile Pro Val Val Ile 195 200 205	Cys Asp Gly Ser Gly Arg Ala Ser Asp Ile Leu Ser Phe Ala His Lys 210 215 220
Met Tyr Ile Arg Val Ser Tyr Asp Thr Lys Pro Asp Ser Leu Leu His 1 5 10 15															
Leu Met Val Lys Asp Trp Gln Leu Glu Leu Pro Lys Leu Ile Ser 20 25 30															
Val His Gly Gly Leu Gln Asn Phe Glu Met Gln Pro Lys Leu Lys Gln 35 40 45															
Val Phe Gly Lys Gly Leu Ile Lys Ala Ala Met Thr Thr Gly Ala Trp 50 55 60															
Ile Phe Thr Gly Gly Val Ser Thr Gly Val Ile Ser His Val Gly Asp 65 70 75 80															
Ala Leu Lys Asp His Ser Ser Lys Ser Arg Gly Arg Val Cys Ala Ile 85 90 95															
Gly Ile Ala Pro Trp Gly Ile Val Glu Asn Lys Glu Asp Leu Val Gly 100 105 110															
Lys Asp Val Thr Arg Val Tyr Gln Thr Met Ser Asn Pro Leu Ser Lys 115 120 125															
Leu Ser Val Leu Asn Asn Ser His Thr His Phe Ile Leu Ala Asp Asn 130 135 140															
Gly Thr Leu Gly Lys Tyr Gly Ala Glu Val Lys Leu Arg Arg Leu Leu 145 150 155 160															
Glu Lys His Ile Ser Leu Gln Lys Ile Asn Thr Arg Leu Gly Gln Gly 165 170 175															
Val Pro Leu Val Gly Leu Val Val Glu Gly Gly Pro Asn Val Val Ser 180 185 190															
Ile Val Leu Glu Tyr Leu Gln Glu Glu Pro Pro Ile Pro Val Val Ile 195 200 205															
Cys Asp Gly Ser Gly Arg Ala Ser Asp Ile Leu Ser Phe Ala His Lys 210 215 220															

Tyr Cys Glu Glu Gly Gly Ile Ile Asn Glu Ser Leu Arg Glu Gln Leu
 225 230 235 240
 Leu Val Thr Ile Gln Lys Thr Phe Asn Tyr Asn Lys Ala Gln Ser His
 245 250 255
 Gln Leu Phe Ala Ile Ile Met Glu Cys Met Lys Lys Lys Glu Leu Val
 260 265 270
 Thr Val Phe Arg Met Gly Ser Glu Gly Gln Gln Asp Ile Glu Met Ala
 275 280 285
 Ile Leu Thr Ala Leu Leu Lys Gly Thr Asn Val Ser Ala Pro Asp Gln
 290 295 300
 Leu Ser Leu Ala Leu Ala Trp Asn Arg Val Asp Ile Ala Arg Ser Gln
 305 310 315 320
 Ile Phe Val Phe Gly Pro His Trp Thr Pro Leu Gly Ser Leu Ala Pro
 325 330 335
 Pro Thr Asp Ser Lys Ala Thr Glu Lys Glu Lys Pro Pro Met Ala
 340 345 350
 Thr Thr Lys Gly Gly Arg Gly Lys Gly Lys Gly Lys Lys Gly Lys
 355 360 365
 Val Lys Glu Glu Val Glu Glu Thr Asp Pro Arg Lys Ile Glu Leu
 370 375 380
 Leu Asn Trp Val Asn Ala Leu Glu Gln Ala Met Leu Asp Ala Leu Val
 385 390 395 400
 Leu Asp Arg Val Asp Phe Val Lys Leu Leu Ile Glu Asn Gly Val Asn
 405 410 415
 Met Gln His Phe Leu Thr Ile Pro Arg Leu Glu Glu Leu Tyr Asn Thr
 420 425 430
 Arg Leu Gly Pro Pro Asn Thr Leu His Leu Leu Val Arg Asp Val Lys
 435 440 445
 Lys Ser Asn Leu Pro Pro Asp Tyr His Ile Ser Leu Ile Asp Ile Gly
 450 455 460
 Leu Val Leu Glu Tyr Leu Met Gly Gly Ala Tyr Arg Cys Asn Tyr Thr
 465 470 475 480
 Arg Lys Asn Phe Arg Thr Leu Tyr Asn Asn Leu Phe Gly Pro Lys Arg
 485 490 495
 Pro Lys Ala Leu Lys Leu Leu Gly Met Glu Asp Asp Glu Pro Pro Ala
 500 505 510
 Lys Gly Lys Lys Lys Lys Lys Lys Lys Glu Glu Glu Ile Asp Ile
 515 520 525
 Asp Val Asp Asp Pro Ala Val Ser Arg Phe Gln Tyr Pro Phe His Glu
 530 535 540
 Leu Met Val Trp Ala Val Leu Met Lys Arg Gln Lys Met Ala Val Phe
 545 550 555 560
 Leu Trp Gln Arg Gly Glu Glu Ser Met Ala Lys Ala Leu Val Ala Cys
 565 570 575
 Lys Leu Tyr Lys Ala Met Ala His Glu Ser Ser Glu Ser Asp Leu Val
 580 585 590
 Asp Asp Ile Ser Gln Asp Leu Asp Asn Asn Ser Lys Asp Phe Gly Gln
 595 600 605
 Leu Ala Leu Glu Leu Leu Asp Gln Ser Tyr Lys His Asp Glu Gln Ile
 610 615 620
 Ala Met Lys Leu Leu Thr Tyr Glu Leu Lys Asn Trp Ser Asn Ser Thr
 625 630 635 640
 Cys Leu Lys Leu Ala Val Ala Ala Lys His Arg Asp Phe Ile Ala His
 645 650 655
 Thr Cys Ser Gln Met Leu Leu Thr Asp Met Trp Met Gly Arg Leu Arg
 660 665 670
 Met Arg Lys Asn Pro Gly Leu Lys Val Ile Met Gly Ile Leu Leu Pro
 675 680 685
 Pro Thr Ile Leu Phe Leu Glu Phe Arg Thr Tyr Asp Asp Phe Ser Tyr
 690 695 700
 Gln Thr Ser Lys Glu Asn Glu Asp Gly Lys Glu Lys Glu Glu Asn
 705 710 715 720

Thr Asp Ala Asn Ala Asp Ala Gly Ser Arg Lys Gly Asp Glu Glu Asn
 725 730 735
 Glu His Lys Lys Gln Arg Ile Ile Pro Ile Gly Thr Lys Ile Cys Lys
 740 745 750
 Phe Tyr Asn Ala Pro Ile Val Lys Phe Trp Phe Tyr Thr Ile Ser Tyr
 755 760 765
 Leu Gly Tyr Leu Leu Leu Phe Asn Tyr Val Ile Leu Val Arg Met Asp
 770 775 780
 Gly Trp Pro Ser Leu Gln Glu Trp Ile Val Ile Ser Tyr Ile Val Ser
 785 790 795 800
 Leu Ala Leu Glu Lys Ile Arg Glu Ile Leu Met Ser Glu Pro Gly Lys
 805 810 815
 Leu Ser Gln Lys Ile Lys Val Trp Leu Gln Glu Tyr Trp Asn Ile Thr
 820 825 830
 Asp Leu Val Ala Ile Ser Thr Phe Met Ile Gly Ala Met Ala Thr Arg
 835 840 845
 Ser Val Met Met Ile Gly Lys Met Met Ile Asp Met Leu Tyr Phe Val
 850 855 860
 Val Ile Met Leu Val Val Leu Met Ser Phe Gly Val Ala Arg Gln Ala
 865 870 875 880
 Ile Leu His Pro Glu Glu Lys Pro Ser Trp Lys Leu Ala Arg Asn Ile
 885 890 895
 Phe Tyr Met Pro Tyr Trp Met Ile Tyr Gly Glu Val Phe Ala Asp Gln
 900 905 910
 Ile Asp Leu Tyr Ala Met Glu Ile Asn Pro Pro Cys Gly Glu Asn Leu
 915 920 925
 Tyr Asp Glu Glu Gly Lys Arg Leu Pro Pro Cys Ile Pro Gly Ala Trp
 930 935 940
 Leu Thr Pro Ala Leu Met Ala Cys Tyr Leu Leu Val Ala Asn Ile Leu
 945 950 955 960
 Leu Val Asn Leu Leu Ile Ala Val Phe Asn Asn Thr Phe Phe Glu Val
 965 970 975
 Lys Ser Ile Ser Asn Gln Val Trp Lys Phe Gln Arg Tyr Gln Leu Ile
 980 985 990
 Met Thr Phe His Asp Arg Pro Val Leu Pro Pro Pro Met Ile Ile Leu
 995 1000 1005
 Ser His Ile Tyr Ile Ile Ile Met Arg Leu Ser Gly Arg Cys Arg Lys
 1010 1015 1020
 Lys Arg Glu Gly Asp Gln Glu Glu Arg Asp Arg Gly Leu Lys Leu Phe
 1025 1030 1035 104
 Leu Ser Asp Glu Glu Leu Lys Arg Leu His Glu Phe Glu Glu Gln Cys
 1045 1050 1055
 Val Gln Glu His Phe Arg Glu Lys Glu Asp Glu Gln Gln Ser Ser Ser
 1060 1065 1070
 Asp Glu Arg Ile Arg Val Thr Ser Glu Arg Val Glu Asn Met Ser Met
 1075 1080 1085
 Arg Leu Glu Glu Ile Asn Glu Arg Glu Thr Phe Met Lys Thr Ser Leu
 1090 1095 1100
 Gln Thr Val Asp Leu Arg Leu Ala Gln Leu Glu Glu Leu Ser Asn Arg
 1105 1110 1115 112
 Met Val Asn Ala Leu Glu Asn Leu Ala Gly Ile Asp Arg Ser Asp Leu
 1125 1130 1135
 Ile Gln Ala Arg Ser Arg Ala Ser Ser Glu Cys Glu Ala Thr Tyr Leu
 1140 1145 1150
 Leu Arg Gln Ser Ser Ile Asn Ser Ala Asp Gly Tyr Ser Leu Tyr Arg
 1155 1160 1165
 Tyr His Phe Asn Gly Glu Glu Leu Leu Phe Glu Asp Thr Ser Leu Ser
 1170 1175 1180
 Thr Ser Pro Gly Thr Gly Val Arg Lys Lys Thr Cys Ser Phe Arg Ile
 1185 1190 1195 120
 Lys Glu Glu Lys Asp Val Lys Thr His Leu Val Pro Glu Cys Gln Asn
 1205 1210 1215

Ser Leu His Leu Ser Leu Gly Thr Ser Thr Ser Ala Thr Pro Asp Gly
 1220 1225 1230
 Ser His Leu Ala Val Asp Asp Leu Lys Asn Ala Glu Glu Ser Lys Leu
 1235 1240 1245
 Gly Pro Asp Ile Gly Ile Ser Lys Glu Asp Asp Glu Arg Gln Thr Asp
 1250 1255 1260
 Ser Lys Lys Glu Glu Thr Ile Ser Pro Ser Leu Asn Lys Thr Asp Val
 1265 1270 1275 128
 Ile His Gly Gln Asp Lys Ser Asp Val Gln Asn Thr Gln Leu Thr Val
 1285 1290 1295
 Glu Thr Thr Asn Ile Glu Gly Thr Ile Ser Tyr Pro Leu Glu Glu Thr
 1300 1305 1310
 Lys Ile Thr Arg Tyr Phe Pro Asp Glu Thr Ile Asn Ala Cys Lys Thr
 1315 1320 1325
 Met Lys Ser Arg Ser Phe Val Tyr Ser Arg Gly Arg Lys Leu Val Gly
 1330 1335 1340
 Gly Val Asn Gln Asp Val Glu Tyr Ser Ser Ile Thr Asp Gln Gln Leu
 1345 1350 1355 136
 Thr Thr Glu Trp Gln Cys Gln Val Gln Lys Ile Thr Arg Ser His Ser
 1365 1370 1375
 Thr Asp Ile Pro Tyr Ile Val Ser Glu Ala Ala Val Gln Ala Glu Gln
 1380 1385 1390
 Lys Glu Gln Phe Ala Asp Met Gln Asp Glu His His Val Ala Glu Ala
 1395 1400 1405
 Ile Pro Arg Ile Pro Arg Leu Ser Leu Thr Ile Thr Asp Arg Asn Gly
 1410 1415 1420
 Met Glu Asn Leu Leu Ser Val Lys Pro Asp Gln Thr Leu Gly Phe Pro
 1425 1430 1435 144
 Ser Leu Arg Ser Lys Ser Leu His Gly His Pro Arg Asn Val Lys Ser
 1445 1450 1455
 Ile Gln Gly Lys Leu Asp Arg Ser Gly His Ala Ser Ser Val Ser Ser
 1460 1465 1470
 Leu Val Ile Val Ser Gly Met Thr Ala Glu Glu Lys Lys Val Lys Lys
 1475 1480 1485
 Glu Lys Ala Ser Thr Glu Thr Glu Cys
 1490 1495

<210> 8
 <211> 5055
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (346)...(4944)

<400> 8
 actcattata gggntcgagc ggccgccccgg gcagggttga gctgtgccct ctccattccca
 60
 ctgctgtggc aggttcagaa atcttgatata gagaaaaacct tttgcaaacg gaaatgtatc
 120
 tttgttaatcc ctacgacgaa agactctaac aggtgttgct gtggccaggat caccaccc
 180
 catatccccct ctctgccaag tgcaacacccc agcaaaaatg aagaggaaag caaacaggatg
 240
 gagactcagc ctgagaaatg gtctgttgcc aagcacacccc agagctaccc aacagattcc
 300
 tatggagttc ttgaattcca gggtgtggcgga tattccaata aagcc atg tat atc cgt
 357
 Met Tyr Ile Arg
 1

gta tcc tat gac acc aag cca gac tca ctg ctc cat ctc atg gtg aaa
 Val Ser Tyr Asp Thr Lys Pro Asp Ser Leu Leu His Leu Met Val Lys
 405
 5 10 15 20

gat tgg cag ctg gaa ctc ccc aag ctc tta ata tct gtg cat gga ggc Asp Trp Gln Leu Glu Leu Pro Lys Leu Leu Ile Ser Val His Gly Gly 25 30 35	453
ctc cag aac ttt gag atg cag ccc aag ctg aaa caa gtc ttt ggg aaa Leu Gln Asn Phe Glu Met Gln Pro Lys Leu Lys Gln Val Phe Gly Lys 40 45 50	501
ggc ctg atc aag gct gct atg acc acc ggg gcc tgg atc ttc acc ggg Gly Leu Ile Lys Ala Ala Met Thr Thr Gly Ala Trp Ile Phe Thr Gly 55 60 65	549
ggt gtc agc aca ggt gtt atc agc cac gta ggg gat gcc ttg aaa gac Gly Val Ser Thr Gly Val Ile Ser His Val Gly Asp Ala Leu Lys Asp 70 75 80	597
cac tcc tcc aag tcc aga ggc cg ^g gtt t ^t gct ata gga att gct cca His Ser Ser Lys Ser Arg Gly Arg Val Cys Ala Ile Gly Ile Ala Pro 85 90 95 100	645
tgg ggc atc gtg gag aat aag gaa gac ctg gtt gga aag gat gta aca Trp Gly Ile Val Glu Asn Lys Glu Asp Leu Val Gly Lys Asp Val Thr 105 110 115	693
aga gtg tac cag acc atg tcc aac cct cta agt aag ctc tct gtg ctc Arg Val Tyr Gln Thr Met Ser Asn Pro Leu Ser Lys Leu Ser Val Leu 120 125 130	741
aac aac tcc cac acc cac ttc atc ctg gct gac aat ggc acc ctg ggc Asn Asn Ser His Thr His Phe Ile Leu Ala Asp Asn Gly Thr Leu Gly 135 140 145	789
aag tat ggc gcc gag gtg aag ctg cga agg ctg ctg gaa aag cac atc Lys Tyr Gly Ala Glu Val Lys Leu Arg Arg Leu Leu Glu Lys His Ile 150 155 160	837
tcc ctc cag aag atc aac aca aga ctg ggg cag ggc gtg ccc ctc gtg Ser Leu Gln Lys Ile Asn Thr Arg Leu Gly Gln Gly Val Pro Leu Val 165 170 175 180	885
ggt ctc gtg gtg gag ggg ggc cct aac gtg gtg tcc atc gtc ttg gaa Gly Leu Val Val Glu Gly Gly Pro Asn Val Val Ser Ile Val Leu Glu 185 190 195	933
tac ctg caa gaa gag cct ccc atc cct gtg gtg att tgt gat ggc agc Tyr Leu Gln Glu Glu Pro Pro Ile Pro Val Val Ile Cys Asp Gly Ser 200 205 210	981
gga cgt gcc tcg gac atc ctg tcc ttt gcg cac aag tac tgt gaa gaa Gly Arg Ala Ser Asp Ile Leu Ser Phe Ala His Lys Tyr Cys Glu Glu 215 220 225	1029
ggc gga ata ata aat gag tcc ctc agg gag cag ctt cta gtt acc att Gly Gly Ile Ile Asn Glu Ser Leu Arg Glu Gln Leu Leu Val Thr Ile 230 235 240	1077
cag aaa aca ttt aat tat aat aag gca caa tca cat cag ctg ttt gca Gln Lys Thr Phe Asn Tyr Asn Lys Ala Gln Ser His Gln Leu Phe Ala 245 250 255 260	1125

D |

att ata atg gag tgc atg aag aag aaa gaa ctc gtc act gtg ttc aga Ile Ile Met Glu Cys Met Lys Lys Glu Leu Val Thr Val Phe Arg 265 270 275	1173
atg ggt tct gag ggc cag cag gac atc gag atg gca att tta act gcc Met Gly Ser Glu Gly Gln Gln Asp Ile Glu Met Ala Ile Leu Thr Ala 280 285 290	1221
ctg ctg aaa gga aca aac gta tct gct cca gat cag ctg agc ttg gca Leu Leu Lys Gly Thr Asn Val Ser Ala Pro Asp Gln Leu Ser Leu Ala 295 300 305	1269
ctg gct tgg aac cgc gtc gac ata gca cga agc cag atc ttt gtc ttt Leu Ala Trp Asn Arg Val Asp Ile Ala Arg Ser Gln Ile Phe Val Phe 310 315 320	1317
ggg ccc cac tgg acg ccc ctg gga agc ctg gca ccc ccg acg gac agc Gly Pro His Trp Thr Pro Leu Gly Ser Leu Ala Pro Pro Thr Asp Ser 325 330 335 340	1365
aaa gcc acg gag aag gag aag cca ccc atg gcc acc acc aag gga Lys Ala Thr Glu Lys Glu Lys Lys Pro Pro Met Ala Thr Thr Lys Gly 345 350 355	1413
gga aga gga aaa ggg aaa ggc aag aag aaa ggg aaa gtg aaa gag gaa Gly Arg Gly Lys Gly Lys Gly Lys Lys Val Lys Glu Glu 360 365 370	1461
gtg gag gaa gaa act gac ccc cggtt aag ata gag ctg ctg aac tgg gtc Val Glu Glu Glu Thr Asp Pro Arg Lys Ile Glu Leu Leu Asn Trp Val 375 380 385	1509
aat gct ttg gag caa gcg atg cta gat gct tta gtc tta gat cgt gtc Asn Ala Leu Glu Gln Ala Met Leu Asp Ala Leu Val Leu Asp Arg Val 390 395 400	1557
gac ttg gtg aag ctc ctg att gaa aac gga gtg aac atg caa cac ttt Asp Phe Val Lys Leu Leu Ile Glu Asn Gly Val Asn Met Gln His Phe 405 410 415 420	1605
ctg acc att ccg agg ctg gag gag ctt tat aac aca aga ctg ggt cca Leu Thr Ile Pro Arg Leu Glu Leu Tyr Asn Thr Arg Leu Gly Pro 425 430 435	1653
cca aac aca ctt cat ctg ctg gtg agg gat gtg aaa aag agc aac ctt Pro Asn Thr Leu His Leu Leu Val Arg Asp Val Lys Lys Ser Asn Leu 440 445 450	1701
ccg cct gat tac cac atc agc ctc ata gac atc ggg ctc gtg ctg gag Pro Pro Asp Tyr His Ile Ser Leu Ile Asp Ile Gly Leu Val Leu Glu 455 460 465	1749
tac ctc atg gga gga gcc tac cgc tgc aac tac act cgg aaa aac ttt Tyr Leu Met Gly Gly Ala Tyr Arg Cys Asn Tyr Thr Arg Lys Asn Phe 470 475 480	1797
cg acc ctt tac aac aac ttg ttt gga cca aag agg cct aaa gct ctt Arg Thr Leu Tyr Asn Asn Leu Phe Gly Pro Lys Arg Pro Lys Ala Leu 485 490 495 500	1845

D

aaa ctt ctg gga atg gaa gat gat gag cct cca gct aaa ggg aag aaa Lys Leu Leu Gly Met Glu Asp Asp Glu Pro Pro Ala Lys Gly Lys Lys 505 510 515	1893
aaa aaa aaa aag aaa aag gag gaa gag atc gac att gat gtg gac gac Lys Lys Lys Lys Lys Glu Glu Ile Asp Ile Asp Val Asp Asp 520 525 530 535	1941
cct gcc gtg agt cggttc cag tat ccc ttc cac gag ctg atg gtg tgg Pro Ala Val Ser Arg Phe Gln Tyr Pro Phe His Glu Leu Met Val Trp 535 540 545	1989
gca gtg ctg atg aaa cgc cag aaa atg gca gtg ttc ctc tgg cag cga Ala Val Leu Met Lys Arg Gln Lys Met Ala Val Phe Leu Trp Gln Arg 550 555 560	2037
ggg gaa gag agc atg gcc aag gcc ctg gtg gcc tgc aag ctc tac aag Gly Glu Ser Met Ala Lys Ala Leu Val Ala Cys Lys Leu Tyr Lys 565 570 575 580	2085
gcc atg gcc cac gag tcc tcc gag agt gat ctg gtg gat gac atc tcc Ala Met Ala His Glu Ser Ser Glu Ser Asp Leu Val Asp Asp Ile Ser 585 590 595	2133
cag gac ttg gat aac aat tcc aaa gac ttc ggc cag ctt gct ttg gag Gln Asp Leu Asp Asn Asn Ser Lys Asp Phe Gly Gln Leu Ala Leu Glu 600 605 610	2181
tta tta gac cag tcc tat aag cat gac gag cag atc gct atg aaa ctc Leu Leu Asp Gln Ser Tyr Lys His Asp Glu Gln Ile Ala Met Lys Leu 615 620 625	2229
ctg acc tac gag ctg aaa aac tgg agc aac tcg acc tgc ctc aaa ctg Leu Thr Tyr Glu Leu Lys Asn Trp Ser Asn Ser Thr Cys Leu Lys Leu 630 635 640	2277
gcc gtg gca gcc aaa cac cgg gac ttc att gct cac acc tgc agc cag Ala Val Ala Ala Lys His Arg Asp Phe Ile Ala His Thr Cys Ser Gln 645 650 655 660	2325
atg ctg ctg acc gat atg tgg atg gga aga ctg cgg atg cgg aag aac Met Leu Leu Thr Asp Met Trp Met Gly Arg Leu Arg Met Arg Lys Asn 665 670 675	2373
ccc ggc ctg aag gtt atc atg ggg att ctt cta ccc ccc acc atc ttg Pro Gly Leu Lys Val Ile Met Gly Ile Leu Leu Pro Pro Thr Ile Leu 680 685 690	2421
ttt ttg gaa ttt cgc aca tat gat gat ttc tcg tat caa aca tcc aag Phe Leu Glu Phe Arg Thr Tyr Asp Asp Phe Ser Tyr Gln Thr Ser Lys 695 700 705	2469
gaa aac gag gat ggc aaa gaa aaa gaa gag gaa aat acg gat gca aat Glu Asn Glu Asp Gly Lys Glu Lys Glu Glu Asn Thr Asp Ala Asn 710 715 720	2517
gca gat gct ggc tca aga aag ggg gat gag gag aac gag cat aaa aaa Ala Asp Ala Gly Ser Arg Lys Gly Asp Glu Glu Asn Glu His Lys Lys 725 730 735 740	2565

cag aga agt att ccc atc gga aca aag atc tgt gaa ttc tat aac gcg 2613
 Gln Arg Ser Ile Pro Ile Gly Thr Lys Ile Cys Glu Phe Tyr Asn Ala
 745 750 755

ccc att gtc aag ttc tgg ttt tac aca ata tca tac ttg ggc tac ctg 2661
 Pro Ile Val Lys Phe Trp Phe Tyr Thr Ile Ser Tyr Leu Gly Tyr Leu
 760 765 770

ctg ctg ttt aac tac gtc atc ctg gtg cggtatg gat ggc tgg ccg tcc 2709
 Leu Leu Phe Asn Tyr Val Ile Leu Val Arg Met Asp Gly Trp Pro Ser
 775 780 785

ctc cag gag tgg atc gtc atc tcc tac atc gtg agc ctg gcg tta gag 2757
 Leu Gln Glu Trp Ile Val Ile Ser Tyr Ile Val Ser Leu Ala Leu Glu
 790 795 800

aag ata cga gag atc ctc atg tca gaa cca ggc aaa ctc agc cag aaa 2805
 Lys Ile Arg Glu Ile Leu Met Ser Glu Pro Gly Lys Leu Ser Gln Lys
 805 810 815 820

atc aaa gtt tgg ctt cag gag tac tgg aac atc aca gat ctc gtg gcc 2853
 Ile Lys Val Trp Leu Gln Glu Tyr Trp Asn Ile Thr Asp Leu Val Ala
 825 830 835

att tcc aca ttc atg att gga gca att ctt cgc cta cag aac cag ccc 2901
 Ile Ser Thr Phe Met Ile Gly Ala Ile Leu Arg Leu Gln Asn Gln Pro
 840 845 850

tac atg ggc tat ggc cgg gtg atc tac tgt gtg gat atc atc ttc tgg 2949
 Tyr Met Gly Tyr Gly Arg Val Ile Tyr Cys Val Asp Ile Ile Phe Trp
 855 860 865

D | tac atc cgt gtc ctg gac atc ttt ggt gtc aac aag tat ctg ggg cca 2997
 Tyr Ile Arg Val Leu Asp Ile Phe Gly Val Asn Lys Tyr Leu Gly Pro
 870 875 880

tac gtg atg atg att gga aag atg atg atc gac atg ctg tac ttt gtg 3045
 Tyr Val Met Met Ile Gly Lys Met Met Ile Asp Met Leu Tyr Phe Val
 885 890 895 900

gtc atc atg ctg gtc gtg ctc atg agt ttc gga gta gcc cgt caa gcc 3093
 Val Ile Met Leu Val Val Leu Met Ser Phe Gly Val Ala Arg Gln Ala
 905 910 915

att ctg cat cca gag gag aag ccc tct tgg aaa ctg gcc cga aac atc 3141
 Ile Leu His Pro Glu Glu Lys Pro Ser Trp Lys Leu Ala Arg Asn Ile
 920 925 930

ttc tac atg ccc tac tgg atg atc tat gga gag gtg ttt gca gac cag 3189
 Phe Tyr Met Pro Tyr Trp Met Ile Tyr Gly Glu Val Phe Ala Asp Gln
 935 940 945

ata gac ctc tac gcc atg gaa att aat cct cct tgt ggt gag aac cta 3237
 Ile Asp Leu Tyr Ala Met Glu Ile Asn Pro Pro Cys Gly Glu Asn Leu
 950 955 960

tat gat gag gag ggc aag cgg ctt cct ccc tgt atc ccc ggc gcc tgg 3285
 Tyr Asp Glu Glu Gly Lys Arg Leu Pro Pro Cys Ile Pro Gly Ala Trp
 965 970 975 980

ctc act cca gca ctc atg gcg tgc tat cta ctg gtc gcc aac atc ctg Leu Thr Pro Ala Leu Met Ala Cys Tyr Leu Leu Val Ala Asn Ile Leu 985	990	995	3333
ctg gtg aac ctg ctg att gct gtg ttc aac aat act ttc ttt gaa gta Leu Val Asn Leu Leu Ile Ala Val Phe Asn Asn Thr Phe Phe Glu Val 1000	1005	1010	3381
aaa tca ata tcc aac cag gtg tgg aag ttc cag cga tat cag ctg att Lys Ser Ile Ser Asn Gln Val Trp Lys Phe Gln Arg Tyr Gln Leu Ile 1015	1020	1025	3429
atg aca ttt cat gac agg cca gtc ctg ccc cca ccg atg atc att tta Met Thr Phe His Asp Arg Pro Val Leu Pro Pro Met Ile Ile Leu 1030	1035	1040	3477
agc cac atc tac atc atc att atg cgt ctc agc ggc cgc tgc agg aaa Ser His Ile Tyr Ile Ile Met Arg Leu Ser Gly Arg Cys Arg Lys 1045	1050	1055	3525
aag aga gaa ggg gac caa gag gaa cgg gat cgt gga ttg aag ctc ttc Lys Arg Glu Gly Asp Gln Glu Glu Arg Asp Arg Gly Leu Lys Leu Phe 1065	1070	1075	3573
ctt agc gac gag gag cta aag agg ctg cat gag ttc gag gag cag tgc Leu Ser Asp Glu Glu Leu Lys Arg Leu His Glu Phe Glu Glu Gln Cys 1080	1085	1090	3621
gtg cag gag cac ttc cgg gag aag gag gat gag cag cag tcg tcc agc Val Gln Glu His Phe Arg Glu Lys Glu Asp Glu Gln Gln Ser Ser Ser 1095	1100	1105	3669
gac gag cgc atc cgg gtc act tct gaa aga gtt gaa aat atg tca atg Asp Glu Arg Ile Arg Val Thr Ser Glu Arg Val Glu Asn Met Ser Met 1110	1115	1120	3717
agg ttg gaa gaa atc aat gaa aga gaa act ttt atg aaa act tcc ctg Arg Leu Glu Glu Ile Asn Glu Arg Glu Thr Phe Met Lys Thr Ser Leu 1125	1130	1135	3765
cag act gtt gac ctt cga ctt gct cag cta gaa gaa tta tct aac aga Gln Thr Val Asp Leu Arg Leu Ala Gln Leu Glu Leu Ser Asn Arg 1145	1150	1155	3813
atg gtg aat gct ctt gaa aat ctt gcg gga atc gac agg tct gac ctg Met Val Asn Ala Leu Glu Asn Leu Ala Gly Ile Asp Arg Ser Asp Leu 1160	1165	1170	3861
atc cag gca cgg tcc cgg gct tct tct gaa tgt gag gca acg tat ctt Ile Gln Ala Arg Ser Arg Ala Ser Ser Glu Cys Glu Ala Thr Tyr Leu 1175	1180	1185	3909
ctc cgg caa agc agc atc aat agc gct gat ggc tac agc ttg tat cga Leu Arg Gln Ser Ser Ile Asn Ser Ala Asp Gly Tyr Ser Leu Tyr Arg 1190	1195	1200	3957
tat cat ttt aac gga gaa gag tta tta ttt gag gat aca tct ctc tcc Tyr His Phe Asn Gly Glu Glu Leu Leu Phe Glu Asp Thr Ser Leu Ser 1205	1210	1215	4005

acg tca cca ggg aca gga gtc agg aaa aaa acc tgt tcc ttc cgt ata 4053
 Thr Ser Pro Gly Thr Gly Val Arg Lys Lys Thr Cys S r Phe Arg Ile
 1225 1230 1235

aag gaa gag aag gac gtg aaa acg cac cta gtc cca gaa tgt cag aac 4101
 Lys Glu Glu Lys Asp Val Lys Thr His Leu Val Pro Glu Cys Gln Asn
 1240 1245 1250

agt ctt cac ctt tca ctg ggc aca agc aca tca gca acc cca gat ggc 4149
 Ser Leu His Leu Ser Leu Gly Thr Ser Thr Ala Thr Pro Asp Gly
 1255 1260 1265

agt cac ctt gca gta gat gac tta aag aac gct gaa gag tca aaa tta 4197
 Ser His Leu Ala Val Asp Asp Leu Lys Asn Ala Glu Glu Ser Lys Leu
 1270 1275 1280

ggt cca gat att ggg att tca aag gaa gat gat gaa aga cag aca gac 4245
 Gly Pro Asp Ile Gly Ile Ser Lys Glu Asp Asp Glu Arg Gln Thr Asp
 1285 1290 1295 1300

tct aaa aaa gaa gaa act att tcc cca agt tta aat aaa aca gat gtg 4293
 Ser Lys Lys Glu Glu Thr Ile Ser Pro Ser Leu Asn Lys Thr Asp Val
 1305 1310 1315

ata cat gga cag gac aaa tca gat gtt caa aac act cag cta aca gtg 4341
 Ile His Gly Gln Asp Lys Ser Asp Val Gln Asn Thr Gln Leu Thr Val
 1320 1325 1330

gaa acg aca aat ata gaa ggc act att tcc tat ccc ctg gaa gaa acc 4389
 Glu Thr Thr Asn Ile Glu Gly Thr Ile Ser Tyr Pro Leu Glu Glu Thr
 1335 1340 1345

aaa att aca cgc tat ttc ccc gat gaa acg atc aat gct tgt aaa aca 4437
 Lys Ile Thr Arg Tyr Phe Pro Asp Glu Thr Ile Asn Ala Cys Lys Thr
 1350 1355 1360

atg aag tcc aga agc ttc gtc tat tcc cgg gga aga aag ctg gtc ggt 4485
 Met Lys Ser Arg Ser Phe Val Tyr Ser Arg Gly Arg Lys Leu Val Gly
 1365 1370 1375 1380

ggg gtt aac cag gat gta gag tac agt tca atc acg gac cag caa ttg 4533
 Gly Val Asn Gln Asp Val Glu Tyr Ser Ser Ile Thr Asp Gln Gln Leu
 1385 1390 1395

acg acg gaa tgg caa tgc caa gtt caa aag atc acg cgc tct cat agc 4581
 Thr Thr Glu Trp Gln Cys Gln Val Gln Lys Ile Thr Arg Ser His Ser
 1400 1405 1410

aca gat att cct tac att gtg tcg gaa gct gca gtg caa gct gag caa 4629
 Thr Asp Ile Pro Tyr Ile Val Ser Glu Ala Ala Val Gln Ala Glu Gln
 1415 1420 1425

aaa gag cag ttt gca gat atg caa gat gaa cac cat gtc gct gaa gca 4677
 Lys Glu Gln Phe Ala Asp Met Gln Asp Glu His His Val Ala Glu Ala
 1430 1435 1440

att cct cga atc cct cgc ttg tcc cta acc att act gac aga aat ggg 4725
 Ile Pro Arg Ile Pro Arg Leu Ser Leu Thr Ile Thr Asp Arg Asn Gly
 1445 1450 1455 1460

atg gaa aac tta ctg tct gtg aag cca gat caa act ttg gga ttc cca Met Glu Asn Leu Leu Ser Val Lys Pro Asp Gln Thr Leu Gly Phe Pro 1465 1470 1475	4773
tct ctc agg tca aaa agt tta cat gga cat cct agg aat gtg aaa tcc Ser Leu Arg Ser Lys Ser L u His Gly His Pro Arg Asn Val Lys Ser 1480 1485 1490	4821
att cag gga aag tta gac aga tct gga cat gcc agt agt gta agc agc Ile Gln Gly Lys Leu Asp Arg Ser Gly His Ala Ser Ser Val Ser Ser 1495 1500 1505	4869
tta gta att gtg tct gga atg aca gca gaa aaa aag gtt aag aaa Leu Val Ile Val Ser Gly Met Thr Ala Glu Glu Lys Lys Val Lys Lys 1510 1515 1520	4917
gag aaa gct tcc aca gaa act gaa tgc tagtctgttt tgtttcttta Glu Lys Ala Ser Thr Glu Thr Glu Cys 1525 1530	4964
attttttttt ttaacagtca gaaaccact aatgggtgtc atcttggccc atcctaaaca catmtccaat ttctctaaaaa cattttccct t	5024 5055
<210> 9 <211> 1533 <212> PRT <213> Homo sapiens	
<400> 9 Met Tyr Ile Arg Val Ser Tyr Asp Thr Lys Pro Asp Ser Leu Leu His 1 5 10 15 Leu Met Val Lys Asp Trp Gln Leu Glu Leu Pro Lys Leu Leu Ile Ser 20 25 30 Val His Gly Gly Leu Gln Asn Phe Glu Met Gln Pro Lys Leu Lys Gln 35 40 45 Val Phe Gly Lys Gly Leu Ile Lys Ala Ala Met Thr Thr Gly Ala Trp 50 55 60 Ile Phe Thr Gly Gly Val Ser Thr Gly Val Ile Ser His Val Gly Asp 65 70 75 80 Ala Leu Lys Asp His Ser Ser Lys Ser Arg Gly Arg Val Cys Ala Ile 85 90 95 Gly Ile Ala Pro Trp Gly Ile Val Glu Asn Lys Glu Asp Leu Val Gly 100 105 110 Lys Asp Val Thr Arg Val Tyr Gln Thr Met Ser Asn Pro Leu Ser Lys 115 120 125 Leu Ser Val Leu Asn Asn Ser His Thr His Phe Ile Leu Ala Asp Asn 130 135 140 Gly Thr Leu Gly Lys Tyr Gly Ala Glu Val Lys Leu Arg Arg Leu Leu 145 150 155 160 Glu Lys His Ile Ser Leu Gln Lys Ile Asn Thr Arg Leu Gly Gln Gly 165 170 175 Val Pro Leu Val Gly Leu Val Val Glu Gly Gly Pro Asn Val Val Ser 180 185 190 Ile Val Leu Glu Tyr Leu Gln Glu Glu Pro Pro Ile Pro Val Val Ile 195 200 205 Cys Asp Gly Ser Gly Arg Ala Ser Asp Ile Leu Ser Phe Ala His Lys 210 215 220 Tyr Cys Glu Glu Gly Gly Ile Ile Asn Glu Ser Leu Arg Glu Gln Leu 225 230 235 240 Leu Val Thr Ile Gln Lys Thr Phe Asn Tyr Asn Lys Ala Gln Ser His 245 250 255	

D

Gln Leu Phe Ala Ile Ile Met Glu Cys Met Lys Lys Lys Glu Leu Val
 260 265 270
 Thr Val Phe Arg Met Gly Ser Glu Gly Gln Gln Asp Ile Glu Met Ala
 275 280 285
 Ile Leu Thr Ala Leu Leu Lys Gly Thr Asn Val Ser Ala Pro Asp Gln
 290 295 300
 Leu Ser Leu Ala Leu Ala Trp Asn Arg Val Asp Ile Ala Arg Ser Gln
 305 310 315 320
 Ile Phe Val Phe Gly Pro His Trp Thr Pro Leu Gly Ser Leu Ala Pro
 325 330 335
 Pro Thr Asp Ser Lys Ala Thr Glu Lys Glu Lys Pro Pro Met Ala
 340 345 350
 Thr Thr Lys Gly Gly Arg Gly Lys Gly Lys Gly Lys Lys Gly Lys
 355 360 365
 Val Lys Glu Glu Val Glu Glu Thr Asp Pro Arg Lys Ile Glu Leu
 370 375 380
 Leu Asn Trp Val Asn Ala Leu Glu Gln Ala Met Leu Asp Ala Leu Val
 385 390 395 400
 Leu Asp Arg Val Asp Phe Val Lys Leu Leu Ile Glu Asn Gly Val Asn
 405 410 415
 Met Gln His Phe Leu Thr Ile Pro Arg Leu Glu Glu Leu Tyr Asn Thr
 420 425 430
 Arg Leu Gly Pro Pro Asn Thr Leu His Leu Leu Val Arg Asp Val Lys
 435 440 445
 Lys Ser Asn Leu Pro Pro Asp Tyr His Ile Ser Leu Ile Asp Ile Gly
 450 455 460
 Leu Val Leu Glu Tyr Leu Met Gly Gly Ala Tyr Arg Cys Asn Tyr Thr
 465 470 475 480
 Arg Lys Asn Phe Arg Thr Leu Tyr Asn Asn Leu Phe Gly Pro Lys Arg
 485 490 495
 Pro Lys Ala Leu Lys Leu Leu Gly Met Glu Asp Asp Glu Pro Pro Ala
 500 505 510
 Lys Gly Lys Lys Lys Lys Lys Lys Lys Glu Glu Glu Ile Asp Ile
 515 520 525
 Asp Val Asp Asp Pro Ala Val Ser Arg Phe Gln Tyr Pro Phe His Glu
 530 535 540
 Leu Met Val Trp Ala Val Leu Met Lys Arg Gln Lys Met Ala Val Phe
 545 550 555 560
 Leu Trp Gln Arg Gly Glu Glu Ser Met Ala Lys Ala Leu Val Ala Cys
 565 570 575
 Lys Leu Tyr Lys Ala Met Ala His Glu Ser Ser Glu Ser Asp Leu Val
 580 585 590
 Asp Asp Ile Ser Gln Asp Leu Asp Asn Asn Ser Lys Asp Phe Gly Gln
 595 600 605
 Leu Ala Leu Glu Leu Leu Asp Gln Ser Tyr Lys His Asp Glu Gln Ile
 610 615 620
 Ala Met Lys Leu Leu Thr Tyr Glu Leu Lys Asn Trp Ser Asn Ser Thr
 625 630 635 640
 Cys Leu Lys Leu Ala Val Ala Ala Lys His Arg Asp Phe Ile Ala His
 645 650 655
 Thr Cys Ser Gln Met Leu Leu Thr Asp Met Trp Met Gly Arg Leu Arg
 660 665 670
 Met Arg Lys Asn Pro Gly Leu Lys Val Ile Met Gly Ile Leu Leu Pro
 675 680 685
 Pro Thr Ile Leu Phe Leu Glu Phe Arg Thr Tyr Asp Asp Phe Ser Tyr
 690 695 700
 Gln Thr Ser Lys Glu Asn Glu Asp Gly Lys Glu Lys Glu Glu Asn
 705 710 715 720
 Thr Asp Ala Asn Ala Asp Ala Gly Ser Arg Lys Gly Asp Glu Glu Asn
 725 730 735
 Glu His Lys Lys Gln Arg Ser Ile Pro Ile Gly Thr Lys Ile Cys Glu
 740 745 750

Phe Tyr Asn Ala Pro Ile Val Lys Phe Trp Phe Tyr Thr Ile Ser Tyr
 755 760 765
 Leu Gly Tyr Leu Leu Leu Phe Asn Tyr Val Ile Leu Val Arg Met Asp
 770 775 780
 Gly Trp Pro Ser Leu Gln Glu Trp Ile Val Ile Ser Tyr Ile Val Ser
 785 790 795 800
 Leu Ala Leu Glu Lys Ile Arg Glu Ile Leu Met Ser Glu Pro Gly Lys
 805 810 815
 Leu Ser Gln Lys Ile Lys Val Trp Leu Gln Glu Tyr Trp Asn Ile Thr
 820 825 830
 Asp Leu Val Ala Ile Ser Thr Phe Met Ile Gly Ala Ile Leu Arg Leu
 835 840 845
 Gln Asn Gln Pro Tyr Met Gly Tyr Gly Arg Val Ile Tyr Cys Val Asp
 850 855 860
 Ile Ile Phe Trp Tyr Ile Arg Val Leu Asp Ile Phe Gly Val Asn Lys
 865 870 875 880
 Tyr Leu Gly Pro Tyr Val Met Met Ile Gly Lys Met Met Ile Asp Met
 885 890 895
 Leu Tyr Phe Val Val Ile Met Leu Val Val Leu Met Ser Phe Gly Val
 900 905 910
 Ala Arg Gln Ala Ile Leu His Pro Glu Glu Lys Pro Ser Trp Lys Leu
 915 920 925
 Ala Arg Asn Ile Phe Tyr Met Pro Tyr Trp Met Ile Tyr Gly Glu Val
 930 935 940
 Phe Ala Asp Gln Ile Asp Leu Tyr Ala Met Glu Ile Asn Pro Pro Cys
 945 950 955 960
 Gly Glu Asn Leu Tyr Asp Glu Glu Gly Lys Arg Leu Pro Pro Cys Ile
 965 970 975
 Pro Gly Ala Trp Leu Thr Pro Ala Leu Met Ala Cys Tyr Leu Leu Val
 980 985 990
 Ala Asn Ile Leu Leu Val Asn Leu Leu Ile Ala Val Phe Asn Asn Thr
 995 1000 1005
 Phe Phe Glu Val Lys Ser Ile Ser Asn Gln Val Trp Lys Phe Gln Arg
 1010 1015 1020
 Tyr Gln Leu Ile Met Thr Phe His Asp Arg Pro Val Leu Pro Pro Pro
 1025 1030 1035 104
 Met Ile Ile Leu Ser His Ile Tyr Ile Ile Met Arg Leu Ser Gly
 1045 1050 1055
 Arg Cys Arg Lys Lys Arg Glu Gly Asp Gln Glu Glu Arg Asp Arg Gly
 1060 1065 1070
 Leu Lys Leu Phe Leu Ser Asp Glu Glu Leu Lys Arg Leu His Glu Phe
 1075 1080 1085
 Glu Glu Gln Cys Val Gln Glu His Phe Arg Glu Lys Glu Asp Glu Gln
 1090 1095 1100
 Gln Ser Ser Ser Asp Glu Arg Ile Arg Val Thr Ser Glu Arg Val Glu
 1105 1110 1115 112
 Asn Met Ser Met Arg Leu Glu Ile Asn Glu Arg Glu Thr Phe Met
 1125 1130 1135
 Lys Thr Ser Leu Gln Thr Val Asp Leu Arg Leu Ala Gln Leu Glu Glu
 1140 1145 1150
 Leu Ser Asn Arg Met Val Asn Ala Leu Glu Asn Leu Ala Gly Ile Asp
 1155 1160 1165
 Arg Ser Asp Leu Ile Gln Ala Arg Ser Arg Ala Ser Ser Glu Cys Glu
 1170 1175 1180
 Ala Thr Tyr Leu Leu Arg Gln Ser Ser Ile Asn Ser Ala Asp Gly Tyr
 1185 1190 1195 120
 Ser Leu Tyr Arg Tyr His Phe Asn Gly Glu Glu Leu Leu Phe Glu Asp
 1205 1210 1215
 Thr Ser Leu Ser Thr Ser Pro Gly Thr Gly Val Arg Lys Lys Thr Cys
 1220 1225 1230
 Ser Phe Arg Ile Lys Glu Glu Lys Asp Val Lys Thr His Leu Val Pro
 1235 1240 1245

Glu Cys Gln Asn Ser Leu His Leu Ser Leu Gly Thr Ser Thr Ser Ala
1250 1255 1260
Thr Pro Asp Gly Ser His Leu Ala Val Asp Asp Leu Lys Asn Ala Glu
1265 1270 1275 128
Glu Ser Lys Leu Gly Pro Asp Ile Gly Ile Ser Lys Glu Asp Asp Glu
1285 1290 1295
Arg Gln Thr Asp Ser Lys Lys Glu Glu Thr Ile Ser Pro Ser Leu Asn
1300 1305 1310
Lys Thr Asp Val Ile His Gly Gln Asp Lys Ser Asp Val Gln Asn Thr
1315 1320 1325
Gln Leu Thr Val Glu Thr Thr Asn Ile Glu Gly Thr Ile Ser Tyr Pro
1330 1335 1340
Leu Glu Glu Thr Lys Ile Thr Arg Tyr Phe Pro Asp Glu Thr Ile Asn
1345 1350 1355 136
Ala Cys Lys Thr Met Lys Ser Arg Ser Phe Val Tyr Ser Arg Gly Arg
1365 1370 1375
Lys Leu Val Gly Gly Val Asn Gln Asp Val Glu Tyr Ser Ser Ile Thr
1380 1385 1390
Asp Gln Gln Leu Thr Thr Glu Trp Gln Cys Gln Val Gln Lys Ile Thr
1395 1400 1405
Arg Ser His Ser Thr Asp Ile Pro Tyr Ile Val Ser Glu Ala Ala Val
1410 1415 1420
Gln Ala Glu Gln Lys Glu Gln Phe Ala Asp Met Gln Asp Glu His His
1425 1430 1435 144
Val Ala Glu Ala Ile Pro Arg Ile Pro Arg Leu Ser Leu Thr Ile Thr
1445 1450 1455
Asp Arg Asn Gly Met Glu Asn Leu Leu Ser Val Lys Pro Asp Gln Thr
1460 1465 1470
Leu Gly Phe Pro Ser Leu Arg Ser Lys Ser Leu His Gly His Pro Arg
1475 1480 1485
Asn Val Lys Ser Ile Gln Gly Lys Leu Asp Arg Ser Gly His Ala Ser
1490 1495 1500
Ser Val Ser Ser Leu Val Ile Val Ser Gly Met Thr Ala Glu Glu Lys
1505 1510 1515 152
Lys Val Lys Lys Glu Lys Ala Ser Thr Glu Thr Glu Cys
1525 1530